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Other States' Statutory and Regulatory Policies

Marwan Masri

Manager, The Renewable Energy Program, California Energy Commission

Mr. Masri was born in 1945. He has a graduate degree in economics from the University of California. His experience includes twenty-two years in the energy field, and fifteen years as a lecturer in economics at several universities in California with particular emphasis on the economics of energy and the environment. He has also spoken at numerous international conferences dealing with the economics of energy and the environment. As a senior economist at the California Energy Commission, he directed an interdisciplinary team that conducted technical and policy research on a wide range of energy issues, including: the comparative economics of alternative energy resources; the valuation of environmental impacts of energy production; global climate change; and the economics of energy research, development, and demonstration. Since October 1996, Mr. Masri has directed the Renewable Energy Program established by Assembly Bill 1890 and Senate Bill 90. This program administers \$540 million in incentive funds to support existing, new and emerging renewable technologies in California during the state's transition to a competitive electricity market and beyond.

The California Energy Commission's Renewable Energy Program

Energy Symposium
November 9, 2000

The California Energy Commission's **Renewable Energy Program**

Marwan Masri,
Program Manager



Presentation Contents

- Background
- Structure
- Status
- Next Steps



Program Development Background

- AB 1890, passed in September 1996, allocated \$540 million; ordered CEC Policy Report
- SB 90, passed in November 1997, codified most of Commission's policy recommendations
- Guidebooks were developed to flesh out details of participation in each of five accounts; adopted January 1998

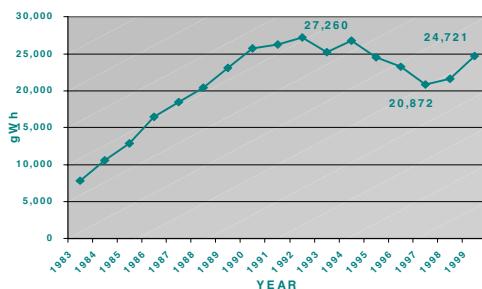


Renewable Power And The Restructured Market

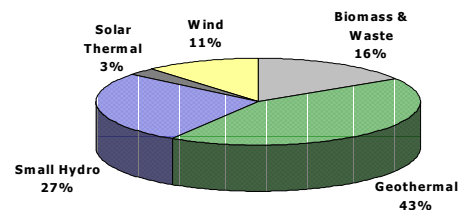
- Stable fuel costs can lead to easier fixed-price contracts and more stable consumer prices
- Environmental characteristics lead to easier permitting, quicker construction
- Distributed nature of some option can provide power where needed
- Modularity, can be added incrementally to meet growing demand



Non-Hydro Renewable GWh



California Renewable Energy 33,779 GWh in 1999 (12% of Total)



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Structured As Five "Accounts"

- Existing Technologies (\$243 Million)
- New Technologies (\$162 Million)
- Emerging Technologies (\$54 Million)
- Customer Credit Subaccount (\$75.6 million)
- Consumer Education Subaccount (\$5.4 million)



Main Goal of Structure: Assisting The Green Market

	Demand	Supply
Buy Green Power	Customer Credit Sub-Account	New Account Existing Account
Make Green Power	Emerging Account	
	Consumer Education SubAccount	



Existing Account

- Intended to help renewable power plants operational prior to September 26, 1996 survive the transition to a competitive market
- Allocations and technologies divided into three 'Tiers', based on relative need for support
 - Tier 1: \$135 million Biomass, Solar Thermal
 - Tier 2: \$ 70 million Wind
 - Tier 3: \$ 38 million Geothermal, LFG, DG, Sm. Hydro
- Monthly payments, or production incentives, made for renewable generation



Existing Account

- Funds are distributed monthly to renewable suppliers through a cents per kilowatt-hour (kWh) payment for eligible renewable electricity generation.
- Payments are based on the difference between the market price [either the short-run avoided cost (SRAC) price or the California Power Exchange (CalPX) price] and the target price, subject to the cap, and limited by the amount of funds available in the Existing Account each month.

New Account -- Auction Overview

- Eligibility Requirements
 - In California
 - Renewable
 - New (On-Line After 9/26/96) but before 1/1/02
- Simple Bid Requirements
 - Cents/kWh Incentive Payment Requested (Cap: 1.5 c/kWh)
 - Estimated Generation Over Five Years
 - Bid Bond (10% of Expected Payments)
 - Demonstration of Site Control and Project Feasibility
- Winners Receive What They Bid (First Price)



New Account

- The first New Account auction was held in June 1998 and resulted in 55 winning bids for projects totaling more than 500 megawatts (MW) of new renewable generation.
- Auction participants were required to submit the cents/kWh incentive they wished to receive (capped at 1.5 cents/kWh), an estimate of their first five years of generation, a detailed description of the proposed project, and a bid bond equal to 10% of their proposed total award (incentive multiplied by generation).

- A total of \$162 million was conditionally allocated to the 55 winning project bids; funding is conditional on passing six milestones and coming on-line before January 1, 2002. Projects receive no funding until they begin generating electricity for sale.

Emerging Account

- Incentives for small distributed systems that primarily offset customer's electricity load (self-generation)
- Four technologies: Photovoltaic, Solar Thermal, Small Wind, and Fuel Cells (using renewable fuel)
- Past initial R&D stage, but still high cost compared to alternatives:
 - Competitive barrier for these technologies is economies of scale
- Program intent is to increase demand and help drive production costs down.



Emerging Account


- The Emerging Account's Buydown Program provides payments to buyers, sellers, lessors or lessees of eligible electricity generating systems that are powered by emerging renewable resources.
- The Buydown Program is open to generating systems of all sizes but is intended to favor small generating systems, such as those typically used by residential or small commercial and agricultural customers.
- Intent of the Buydown Program is to reduce the net cost to the end user of generating equipment using

emerging renewable technologies, thereby stimulating sales of such systems. Increased sales are expected to encourage manufacturers, sellers, and installers to expand their operations and reduce their costs.

Customer Credit Subaccount

- Program intent is to 'jump-start' the renewable or green market in California
- Provides incentives for purchasing eligible renewable energy through direct access marketplace
- Eligible renewable energy is generally from existing or new in-state powerplants not under contract to or owned by existing utilities


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**Customer Credit SubAccount:
How Program Works**

- Commission provides an incentive of up to 1.5 cents/kWh for purchases of eligible renewable energy
- Administrative costs reduced by distributing funding through energy service providers
- Incentive \$ capped for large Commercial and Industrial customers (> 20 KW) at \$1,000/year


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Consumer Education SubAccount

- \$5.4 million collected over four years
- Expended to:
 - promote renewable energy
 - provide information on renewable technologies
 - help develop a consumer market
- Explicitly covers both green power and emerging technologies markets


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Existing Account

- Pays cents/kWh production incentives (capped at 1.5 cents/kWh) to renewable generators on-line before 9-96
- 259 existing renewable facilities (over 4,000 MW) have received more than \$130 million
 - Tier 1 facilities (biomass, solar thermal, waste tire) have received \$80 million
 - Tier 2 facilities (wind) have received \$30 million
 - Tier 3 facilities (digester gas, geothermal, landfill gas, MSW, and small hydro) have received \$20 million
- More than 70 facilities have gone "off the cliff" but are continuing to operate

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Customer Credit Subaccount

- The Customer Credit Subaccount program began when the electricity market opened on March 31, 1998 and is expected to continue through December 2001 with funding allocated through Senate Bill 90.

- In most cases, electricity providers pass the credit on to consumers through a discounted electricity price; the credit is included in the electricity price. Providers must inform consumers about the credit on their bill.

- The customer credit, which is currently set at 1.0 cent/kWh, is a credit for the purchase of eligible renewable energy. The rebate is given to eligible consumers who purchase eligible renewable energy from a registered renewable provider.

- In most cases, electricity providers pass the credit on to consumers through a discounted electricity price; the credit is included in the electricity price.

- At the opening of the program, the credit level was set at 1.5 cents/kWh, the maximum allowable by law. The Commission has since lowered the credit level in response to market growth and the growing demand on funds.

Consumer Education

- After gathering stakeholder input, the Energy Commission adopted the *Renewable Energy Consumer Education Marketing Plan* in February 1999.

- The Marketing Plan outlines two action paths; one for renewable energy from the grid and a separate for emerging renewable technologies: 80% or \$4.32 million for marketing and educational activities to promote the

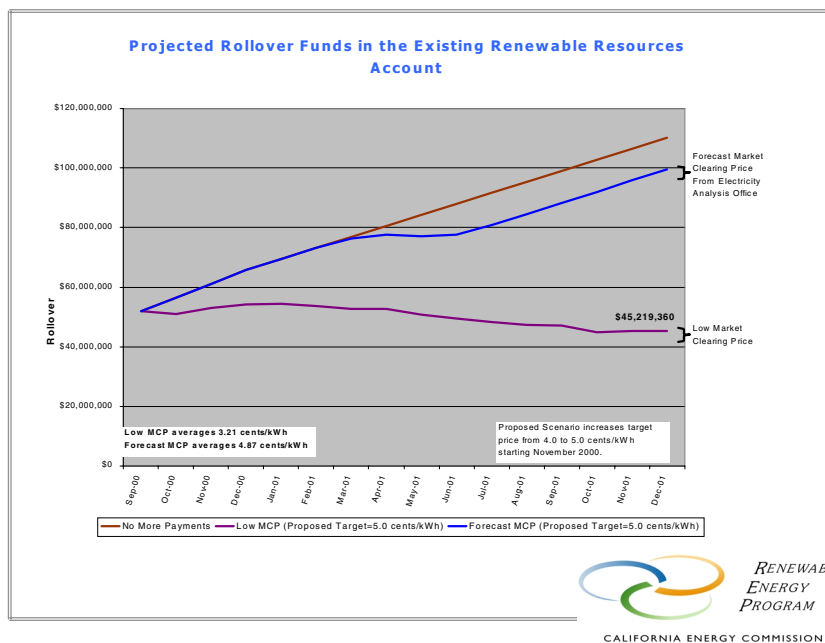
renewable energy market; 20% or \$1.08 million for marketing and educational activities to promote emerging renewable technologies for on-site generation of renewable power.

Status: Existing Account

- As a result of high short-run avoided cost (SRAC) prices, the rollover has nearly tripled for the three tiers combined and is currently over \$40 million. The rollover is the amount of money that is available in the Existing Account bus has not yet been paid out to

facilities. Any funds that are not paid in one month are added to the following month's allocation and made available for that month's payments cycle.

- SRAC prices are expected to stay high, and it is unlikely that payments will be made to any facilities in Tiers 1, 2, or 3 through the end of 2000.
- The term "off the cliff" refers to the end of a facility's fixed payment period of its contract with a utility.



New Account: Project Status

Technology	Total Winners	Now On-Line	Filed Permits
Wind	24 projects ~260 MW	2 projects 19 MW	22 projects 241 MW
Geothermal	4 projects 157 MW	2 project 59 MW	3 projects 109 MW
Landfill Gas	23 projects 71 MW	8 projects 25 MW	19 projects 50 MW
Total ¹	55 projects ~500 MW	12 projects 103 MW	47 projects 406 MW

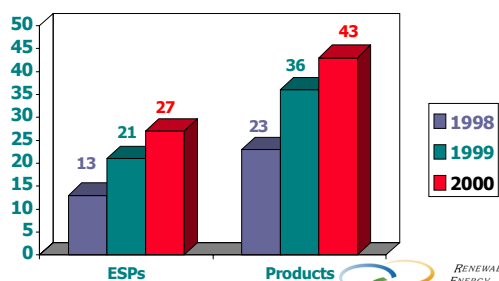
1. Total includes



Status: New Account

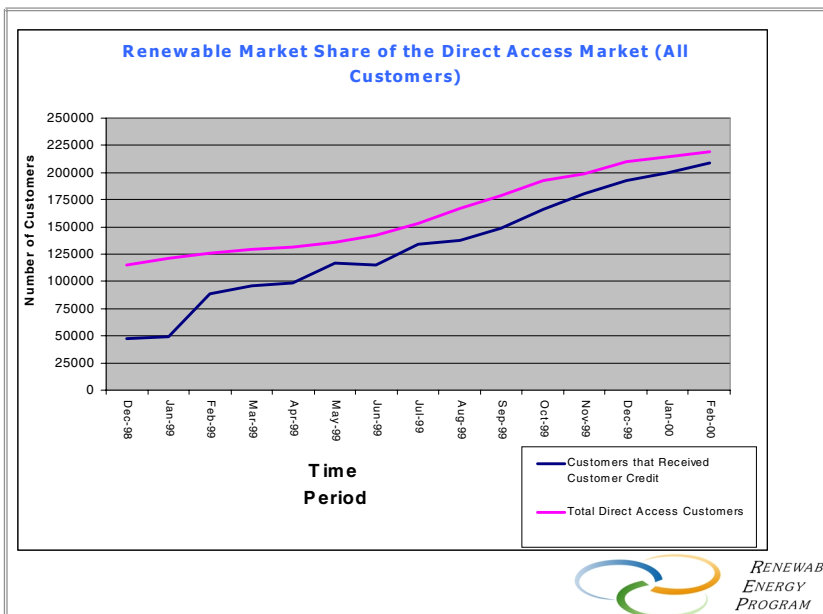
- Winning projects are expected to pass six milestones, including applying for and receiving necessary permits, starting construction, and coming on-line, before receiving any payments. Filing for permits is Milestone 2.
- As of October 1, 2000, 12 participating projects totaling over 100 MW were on-line and producing renewable energy (eight landfill gas facilities, two wind facilities, and two geothermal plants).

Customer Credit Account Activity



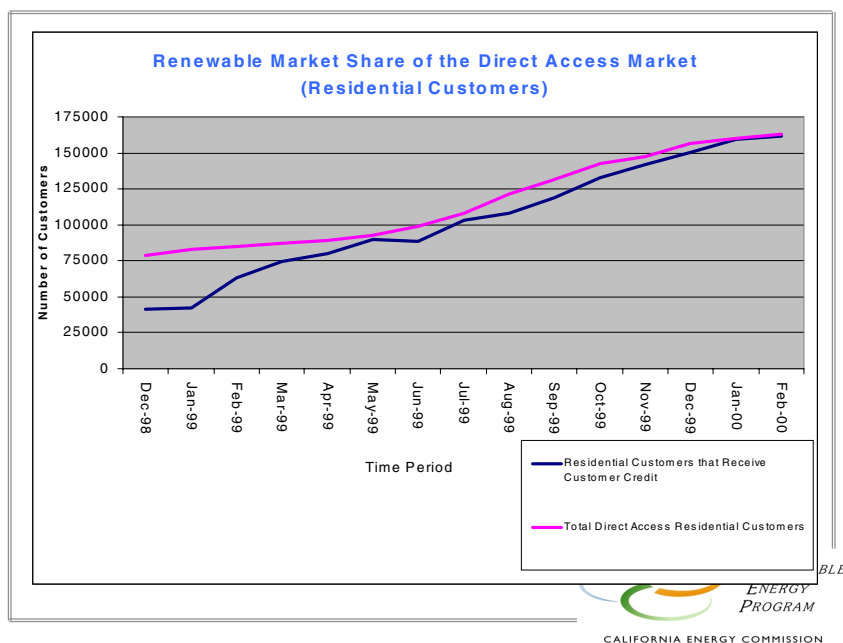
Status: Customer Credit Account

Energy Service Performance Contracts and products under the customer credit account are shown.



Renewable Market Share of the Direct Access Market (All Customers)

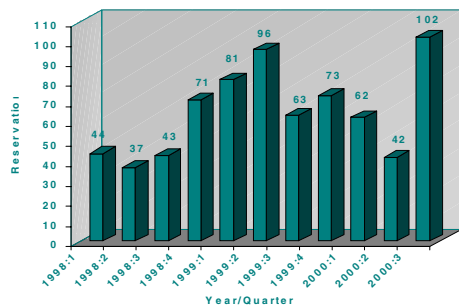
Most of the customers who have switched service providers have chosen renewable energy.



Renewable Market Share of the Direct Access Market (Residential Customers)

The trend is even more pronounced among residential customers. Almost all of the customers who have switched service providers have chosen renewable energy.

Emerging Account: Reservation Growth Over Time

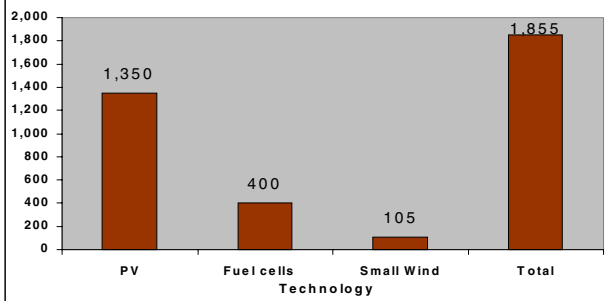


Reservations by Category

Completed Systems	395
Received	35
Approved	223
Total	653



Installed Capacity (kW)



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Program Evaluation

- Report to Legislature on November 1, 2000
- Additional evaluation planned in 2000-2001
- Final report to Legislature in early 2002



Second Auction

Second auction for new renewable resources released October 12 with bids due November 15, 2000

- \$40 million available, reallocated from Existing Account
- Bids due November 15, 2000
- Projects must come on-line by December 31, 2001
- 10% incentive bonus for projects coming on-line by or before June 1, 2001
- Penalties for projects coming on-line after July 1, 2001



Second Auction

- The \$40 million was reallocated from the Existing Account's rollover funds.
- Primary purpose of the auction is to help ease the energy shortage that California could face in the summer of 2001.

Extension of Public Goods Charge

AB 995 (Wright) and SB 1194 (Sher) recently signed by Governor extends funding for renewables for 10 years at current level (\$135 million/year)

CEC to develop "investment plan" recommending allocation among:

- new renewable energy
- emerging renewable technologies
- customer credits for renewables
- customer education
- incentives to reduce biomass fuel costs
- solar thermal generating resources
- fuel cell technologies that meet certain criteria

Held workshops (10/30, 10/31, 11/2) to receive public input



Extension of Public Goods Charge

The program has been extended for another 10 years. In order to provide confidence to investors, the relatively long-term (10 years) commitment was necessary.